

WHAT IS CLAIMED IS:

1. A starter for cranking an internal combustion engine, the starter comprising:

a front housing;

a rear end frame having a rear end surface;

an electric motor disposed between the front housing and the rear end frame, the front housing and the rear end frame being connected to each other by a pair of through-bolts with the electric motor interposed therebetween; and

a rear end cover for covering the rear end surface of the rear end frame, the rear end cover comprising: an upper plate; a pair of sidewalls bent from the upper plate; a pair of lower plates, each being bent from each sidewall in parallel to the upper plate; and a pair of arms, each extending from each lower plate, wherein:

the rear end cover is connected to the rear end frame, so that the upper plate is positioned in parallel to the rear end surface of the rear end frame with a predetermined space formed therebetween, and the pair of lower plates are positioned in parallel to the rear end surface with a small gap formed therebetween.

2. The starter as in claim 1, wherein:

the rear end frame includes a pair of bolt-head-supporting portions for receiving a fastening force of the through-bolts; and

the arms of the rear end cover are supported on the bolt-head-supporting portions.

3. The starter as in claim 2, wherein:

the arms of the rear end cover are fixed on the through-bolts by fixing means.

4. The starter as in claim 2, wherein:

the through-bolt includes a bolt head that is supported on the bolt-head-supporting portion and a male-threaded portion extending from the bolt head in the axial direction of the through-bolt; and

the arm of the rear end cover is fastened to the male-threaded portion with a fastening nut.

5. The starter as in claim 4, wherein:

a washer having a flat surface which is larger than that of the bolt head is interposed between the bolt head and the arm of the rear end cover.

6. The starter as in claim 1, wherein:

the upper plate of the rear end cover has a surface substantially in a rectangular shape, and both sides of the surface not connected to the sidewalls are curved to form circular arcs swelling outside.

7. The starter as in claim 1, wherein:

at least the upper plate and the pair of lower plates of the rear end cover are disposed to be encompassed within an outer periphery of the rear end frame.

8. The starter as in claim 1, wherein:

reinforcing ribs are formed at a bent portion between the upper plate and the sidewall.

9. The starter as in claim 1, wherein:

reinforcing ribs are formed at a bent portion between the upper plate and the sidewall, and at a bent portion between the sidewall and the lower plate.

10. The starter as in claim 1, wherein:

the rear end cover is formed from a single metallic plate by presswork.

11. The starter as in claim 1, further comprising a magnetic switch for supplying electric current to the electric motor in an ON-OFF fashion, the magnetic switch being connected to the front housing thereby forming a unitary body of the starter, wherein:

the magnetic switch includes a battery terminal bolt, to which a battery cable is connected, extending to the rear side of the starter in the axial direction thereof; and

the upper plate of the rear end cover is positioned at a further rear side of the axial end of the battery terminal bolt.

12. The starter as in claim 11, wherein the battery cable is led to the battery terminal bolt through a space between the upper plate and the rear end frame.